

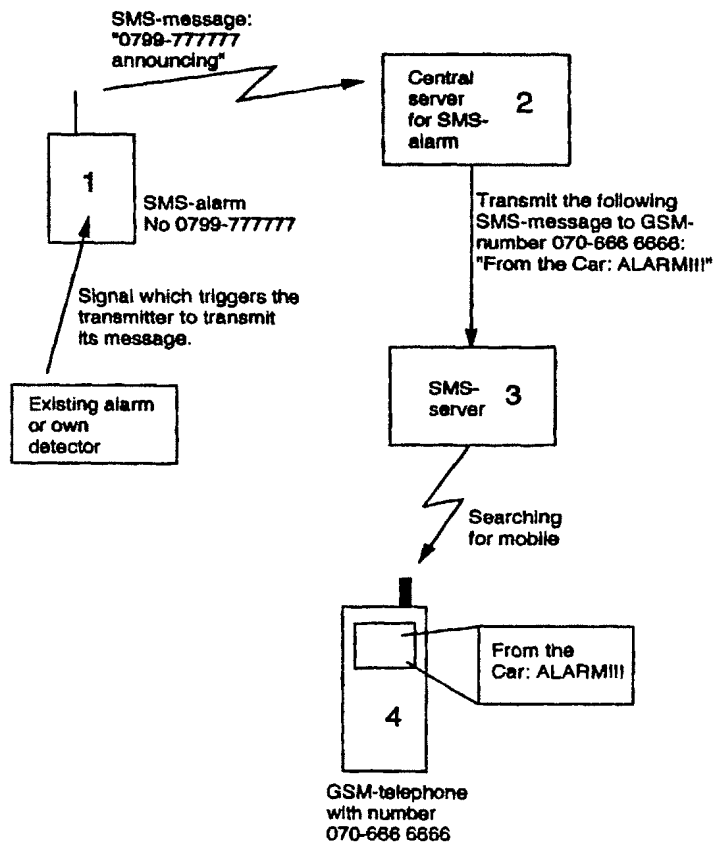


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>B60R 25/10, H04Q 7/22</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 98/16412</b> <b>(43) International Publication Date:</b> 23 April 1998 (23.04.98)
<b>(21) International Application Number:</b> PCT/SE97/01714 <b>(22) International Filing Date:</b> 14 October 1997 (14.10.97)  <b>(30) Priority Data:</b> 9603826-0      17 October 1996 (17.10.96)      SE  <b>(71) Applicant:</b> TELIA AB [SE/SE]; Mårbackagatan 11, S-123 86 Farsta (SE).  <b>(72) Inventor:</b> KARLSSON, Conny; Skärmarbrinksvägen 6, S-121 35 Johanneshov (SE).  <b>(74) Agent:</b> MAYER, Till; Telia Research AB, Rudsjöterrassen 2, S-136 80 Haninge (SE).		<b>(81) Designated States:</b> NO, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

**(54) Title:** SMS-ALARM**(57) Abstract**

The invention relates to utilization of an SMS-transmitter (1) as car alarm. When physical damage is made to a car, the SMS-transmitter (1) transmits a preprogrammed message to a central server (2) for SMS-alarm. This central server (2) for SMS-alarm after that transmits an alarm message to the owner of the alarm in the form of either an SMS-message, or a minicall text-message. The alarm message is shown on the owner's mobile telephone display (4) or on the display of the minicall receiver (6).



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

TITLE OF THE INVENTION: SMS-ALARM

FIELD OF THE INVENTION

The present invention relates to a device and a method  
5 at a telecommunications system for generation of alarm  
signals.

PRIOR ART

The share of cars which are equipped with alarm has  
10 increased in recent years. For different reasons by that  
also the number of false triggered alarms has unfortunately  
increased. This is applicable above all to cities where  
people nowadays hardly react on when a car alarm is  
sounding. In most cases the car cannot either be parked in  
15 such a way that the owner can hear if the alarm is  
triggered.

A big problem with the alarms of today is that the  
thieves within 5-10 seconds most often have succeeded in  
switching off the alarm, which results in that it is only  
20 interpreted as one out of a large number of false alarms.

These factors have resulted in that the feeling of  
security of having an alarm device in the car to a great  
extent has been reduced. It consequently would be desirable  
to have more control over the alarm for getting immediate  
25 information if it is triggered, and by that rapidly be able  
to take suitable actions.

The present invention intends to solve this problem by  
utilizing an SMS-alarm (SMS = Short Message Services).

To find out whether the prior art has utilized SMS-  
30 alarm to solve above mentioned problem, a preliminary  
investigation was made, at which the following documents  
were found.

Document 1: US-A-5 416 725  
35 Document 2: US-A-4 887 291

3: US-A-5 272 465

4: US-A-5 351 235

Document 1 relates to a computer based alarm system  
5 where a number of fixed or mobile sensors 38, 32 first  
transfer alarm information to the computer system 12 over  
an "alarm interface" 26, respective "remote unit interface"  
30, and after that transmits alarm information in form of  
for instance text information over a cellular network to  
10 selected authorities or persons (column 7, line 4-15. See  
especially "Summary of the invention" and Figure 1 with  
belonging text.

Document 2 describes an alarm system by which, for  
instance, fire- or burglary alarm text information can be  
15 transmitted to a mobile pager. See especially "Abstract"  
and Figure 1 with belonging text.

Document 3 deals with an "Automatic alarm code  
converter" capable of receiving and processing alarm  
reports from different sources and with different codings  
20 and then generating an alarm report in form of a text  
message to a pager. See "Background of the invention" and  
"Summary of the invention" and Figure 1 with belonging  
text.

Document 4 describes a method to transmit SMS-messages  
25 between mobile units, or between fixed and mobile units,  
over a cellular network such as, for instance, GSM. See  
especially the embodiment which is explained in Figure 9-11  
with belonging text, where information about, for instance,  
the amount of light fuel oil in a villa oil tank  
30 automatically can be transmitted to a mobile unit in form  
of an SMS-message.

The above documents referred to, consequently do not  
make use of any alarm device which explicitly transmits a  
preprogrammed SMS-message over a cellular telephone  
35 network.

## SUMMARY OF THE INVENTION

The aim of the present invention consequently is to solve above mentioned problem by utilizing an SMS-alarm.

This aim is achieved by a device and a method which is characterized in that an SMS-transmitter transmits a preprogrammed message, when an alarm device is activated, to a central server for SMS-alarm, after which said central server transmits an alarm message to the owner of the alarm device/SMS-transmitter in form of an SMS-message/minicall-message.

The alarm according to the present invention has many advantages in comparison with ordinary car alarms.

One advantage is that when the alarm once has been triggered, the thief has no possibility to switch off the alarm.

Another advantage is that the alarm is portable. It doesn't matter where the owner is, provided that the owner carries with himself/herself his/her mobile telephone with SMS-reception or his/her minicall-receiver.

One more advantage of the present invention is that the owner of the alarm device at received alarm can call the police with his/her telephone. The owner of the alarm device consequently need not, as is the case today, go to his/her car to check from where the alarm sound is coming; the alarm may of course just as well come from another car.

Further characteristics of the invention are given in the subclaims.

## BRIEF DESCRIPTION OF THE INVENTION

In the following a more detailed description of the invention is given with reference to the enclosed figures.

Figure 1 describes schematically a telecommunications system where an SMS-alarm is connected to a GSM-telephone with an SMS-service.

Figure 2 describes schematically a telecommunications system where an SMS-alarm is connected to Minicall.

Figure 3 describes a potential scenario.

5

#### DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

The invention consists of a transmitter in combination with a detector, at which the transmitter can transmit a  
10 preprogrammed SMS-message over the GSM-network to a central server which manages the service SMS-alarm. The number to this server is stored in the transmitter. This message is unique to each individual transmitter, and might consist of a subscriber number or the like.

15 In the following the invention will be described first with reference to Figure 1 (the SMS-case), and then with reference to Figure 2 (the Minicall-case). After that the invention will be described as it is preferably intended to be used with reference to Figure 3.

20 Let us suppose that the SMS-transmitter (Figure 1) is arranged inside a car and connected to on one hand a detector, and on the other an antenna device. The detector shall be activated at physical damage to the car, for instance if somebody tries to break open the lock of the  
25 door, or smashes a car window. It must of course be realized that the detector also can be integrated in the SMS-transmitter.

When the transmitter 1 receives a trigger signal from an alarm device or a detector, it immediately transmits its  
30 programmed message to the SMS-alarm server 2, for instance its subscriber number 0799-777777.

The central server 2 reads which transmitter that has transmitted an alarm and performs the instructions which are associated to just this SMS-alarm. It finds out which  
35 GSM-number that shall have the alarm message, the text to

be used in it, how many messages that shall be transmitted, and with which intervals they shall be transmitted. These parameters can be selected freely by the customer and be changed when necessary.

5       After that the SMS-message is transmitted to the SMS-server 3 of an operator which in ordinary way makes a search of the mobile in question, 4. No modification of the SMS-server 3 needs to be done, since all functionality connected to the SMS-alarm is in the central server 2 for  
10 SMS-alarm. This also results in that when the alarm once has reached the alarm-center 2, it cannot be stopped by destruction of the transmitter. The alarm center still performs its searchings according to its program, or until the customer has confirmed that he/she has been reached by  
15 the message by calling the center 2. At the center 2 there is a computerized keyset code service which makes it possible for the customer to, by means of a digit code, switch off the alarm.

As can be seen in Figure 2 a situation is shown where  
20 the SMS-alarm server 2 transmits SMS-messages to a Minicall-center 5, instead of to an SMS-server 3 as in Figure 1. The transmitter of the SMS-alarm is in this case the same as before, but in the central alarm server 2 the SMS-alarm is instead forwarded in form of a minicall-search  
25 via a minicall text center 5 to a minicall receiver 6.

It should be realized that the described SMS-transmitter shall be possible to be connected directly to a conventional car alarm which generates sound signals.

The SMS-transmitter can, in the first place, be  
30 offered as a complement to different alarm systems for cars, boats, houses etc. This can either be offered to customers by cooperation with manufacturers of alarm systems, or by selling the product themselves as an accessory device to different alarm devices.

Another use is to provide the SMS-transmitter 1 with an own detector of some kind, and in that way use it as a less sophisticated alarm for, for instance, the cellar storage room, the bicycle or the like.

5 In the following a possible scenario is described with reference to Figure 3.

A customer has bought a car equipped with an alarm which has the supplementary service "SMS-alarm", i.e. a small alarm transmitter is located somewhere in the car. At  
10 the purchase the customer had to fill in his/her GSM-number, to which the alarm should be connected, and how many SMS-messages that should be generated each time the alarm is triggered, and how long the interval between them should be. The customer selected the alternative three  
15 transmissions with thirty seconds interval, two minutes interruption, and then repeated transmissions according to this schedule, until the SMS-alarm is switched off manually via the telephone service.

One evening when the customer is watching TV, somebody  
20 makes an attempt at breaking into the customer's car which is parked two blocks away. The alarm will of course be triggered, but the thieves succeed in silencing the siren after 5-10 seconds. Because everybody are used to people forgetting to deactivate their alarms, nobody will pay  
25 attention to the occurrence. Our customer, on the contrary, is well situated since he/she has an "SMS-alarm".

The telephone peeps shortly after the alarm has been triggered and the text "FROM THE CAR: ALARM" will show up on the display of the mobile, whereupon the customer  
30 immediately calls the police. Three minutes after the alarm has been triggered, the police is on the spot and the thieves are caught in the act.

The above described is only to be regarded as an advantageous embodiment of the invention, and the scope of



protection of the invention is only defined by what are indicated in the following patent claims.

## PATENT CLAIMS

1. Device at a telecommunications system for generation of alarm signals, c h a r a c t e r i z e d in an SMS-transmitter (1) which is connected to a detector, at  
5 which said SMS-transmitter (1) transmits a programmed message to a central server (2) for SMS-alarm when said detector generates an alarm, at which said server (2) is arranged to identify said SMS-transmitter (1) and transmit a preprogrammed alarm message to the owner of said SMS-  
10 transmitter.

2. Device according to patent claim 1, c h a r a c t e r i z e d in that said central server (2) transmits a preprogrammed SMS-message, for instance "From the Car: ALARM", to an SMS-server (3), which SMS-server (3)  
15 provides searching for said alarm owner's mobile telephone (4), at which the SMS-message is shown to said owner on the display of the mobile telephone, together with warning signals.

3. Device according to patent claim 1, c h a r a c t e r i z e d in that said central server (2) transmits a preprogrammed Minicall-message, for instance "From the Car: ALARM", to a Minicall text center (5), which center (5) provides searching for said alarm owner's minicall receiver (6), at which the SMS-message is shown to  
25 said owner on the display of the minicall receiver, together with warning signals.

4. Device according to any of the previous patent claims, c h a r a c t e r i z e d in that said SMS-transmitter (1) is equipped with an own alarm detector or  
30 connected to an externally arranged alarm detector, at which said SMS-transmitter (1) is arranged to immediately transmit its subscriber number, for instance 0799-777777, to said central server (2) when said transmitter (1) receives a trigger signal from said alarm detectors, at  
35 which said central server (2) is arranged to identify said

transmitter och perform the instructions which are connected to said subscriber number.

5        5. Device according to any of the previous patent claims, c h a r a c t e r i z e d in that said central server (2) is equipped with a computerized key set code service, at which said alarm owner can switch off the alarm by means of a digital code.

10       6. Device according to any of the previous patent claims, c h a r a c t e r i z e d in that said SMS-transmitter (1) is arranged at a vehicle and connected on one hand to said detector, and on the other to an antenna device, at which said detector generates an alarm signal at physical damage to said vehicle.

15       7. Device according to any of the previous patent claims, c h a r a c t e r i z e d in that said SMS-transmitter is connected to a conventional car alarm which generates sound signals.

20       8. Method at a telecommunications system for generation of alarm signals, c h a r a c t e r i z e d in that an SMS-transmitter (1) connected to a detector transmits a message to a central server (2) for SMS-alarm, when said detector generates an alarm, at which said server (2) identifies said SMS-transmitter and transmits a preprogrammed alarm message, for instance "From the Car:  
25       ALARM", to the owner of said SMS-transmitter (1).

9. Method according to patent claim 8, at which said SMS-transmitter, together with said detector, constitutes an alarm device in a car, c h a r a c t e r i z e d in that it includes the steps that:

30       a) a person/persons makes physical damage to said car, at which the detector generates an alarm signal to said transmitter (1);

      b) said transmitter generates a message, preferably its subscriber number 0799-777777, which is transmitted to  
35       a central server (2) for SMS-alarm;

c) said central server identifies said SMS-transmitter (1) and finds out which GSM-number that shall have said preprogrammed message, and what text that shall be in said message; for instance "From the Car: ALARM";

5 d) said central server (2) transmits said preprogrammed SMS-message to an operator's SMS-server (3), which provides searching for mobile telephone in question (4);

10 e) said alarm message is shown on the display of the mobile telephone in question (4) together with peep signals;

f) the owner of said mobile telephone (4) calls the police and switches off the alarm by calling the central (2) and utilizing a computerized keyset code service which  
15 makes it possible for the owner to, by means of a digital code, switch off the alarm.

10. Method according to patent claim 8, at which said SMS-transmitter, together with said detector, constitutes an alarm device in a car, c h a r a c t e r i z e d in that  
20 it includes the steps that:

a) a person/persons makes physical damage to said car, at which the detector generates an alarm signal to said transmitter (1);

25 b) said transmitter (1) generates a message, preferably its subscriber number 0799-777777, which is transmitted to a central server (2) for SMS-alarm;

c) said central server (2) identifies said SMS-transmitter (1) and finds out which minicall-number that shall have said preprogrammed message, and what text that  
30 shall be in said message;

d) said central server (2) transmits said preprogrammed minicall text-message to a minicall text-center (5) which provides searching for minicall receiver in question (6);

e) said alarm message is shown on the display of the minicall receiver in question, together with peep-signals;

f) the owner of said minicall-receiver (6) calls the police and switches off the alarm by calling the center (2) and utilizing a computerized keyset code service which makes it possible for the owner to, by means of a digital code, switch off the alarm.

1/3

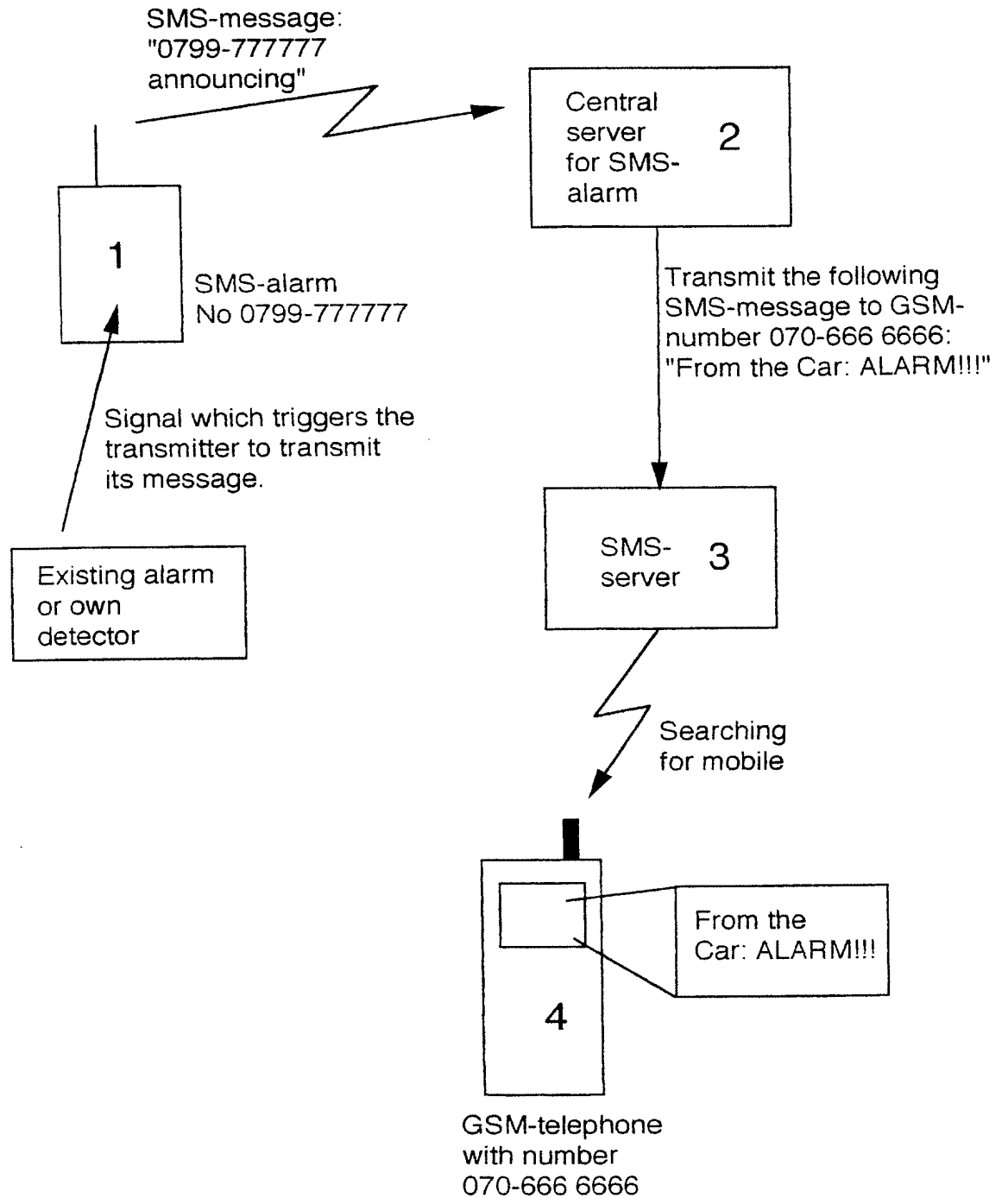


Figure 1

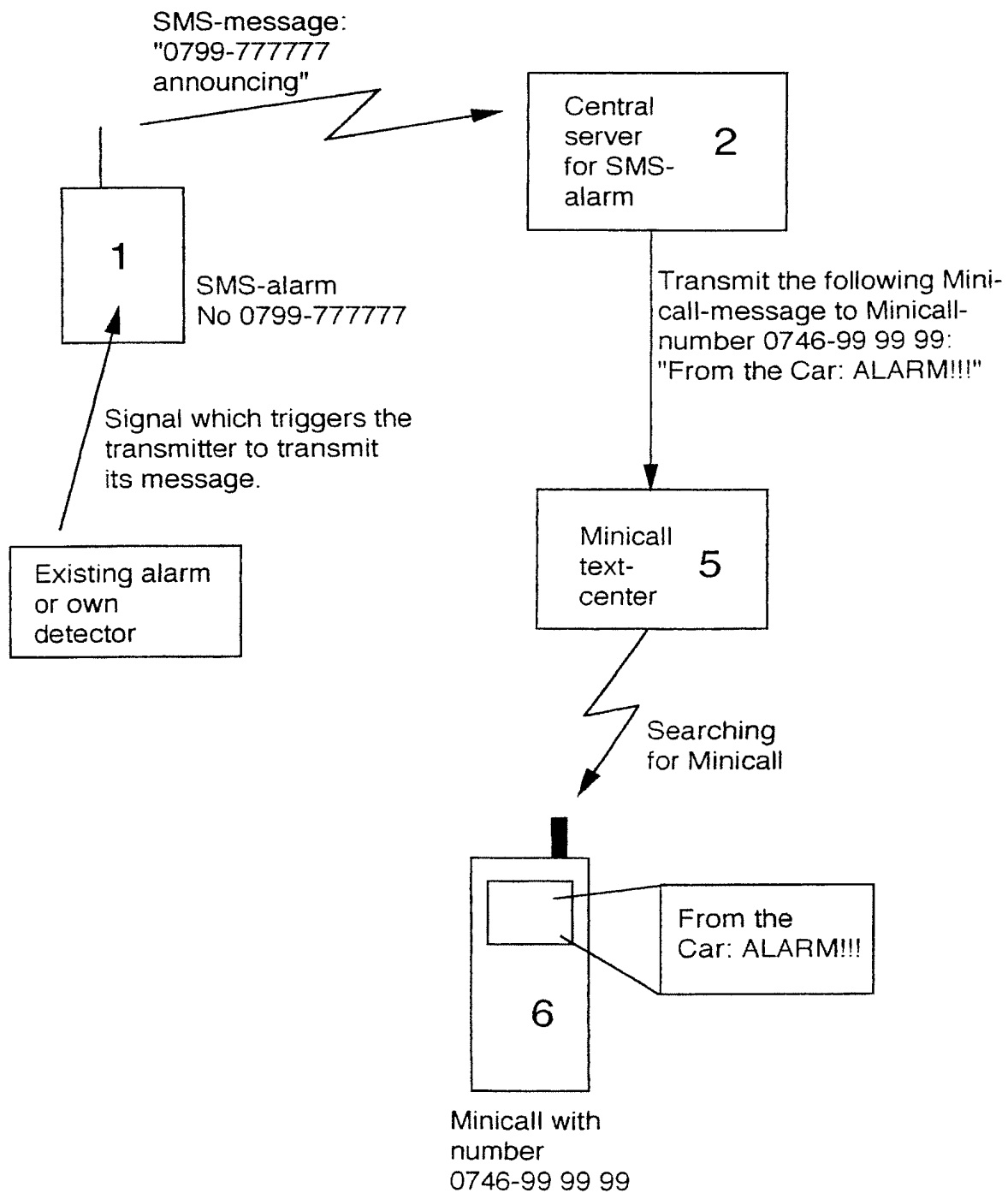


Figure 2

3/3

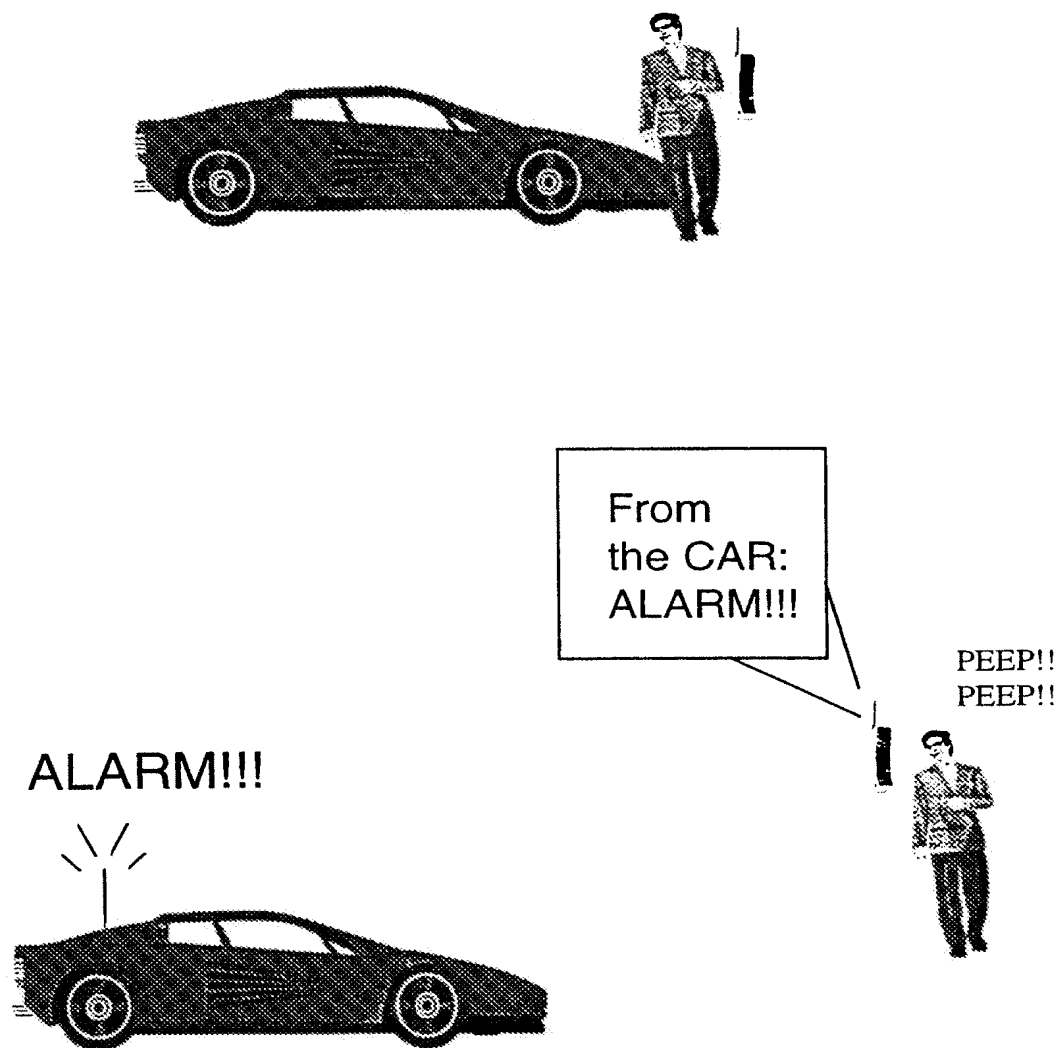


Figure 3



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 97/01714

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B60R 25/10, H04Q 7/22

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B60R, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5416725 A (STEVEN M. PACHECO ET AL), 16 May 1995 (16.05.95), column 7, line 4 - line 15, abstract --	1-10
X	EP 0417944 A2 (NOKIA MOBILE PHONES LTD.), 20 March 1991 (20.03.91), column 1, line 18 - line 22, abstract --	1-10
X	US 4887291 A (JAMES T. STILLWELL), 12 December 1989 (12.12.89), column 1, line 53 - column 2, line 13 -- -----	1-10

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

9 March 1998

Date of mailing of the international search report

10.03.98

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Bengt Romedahl  
Telephone No. +46 8 782 25 00

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 97/01714

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US	5416725	A	16/05/95	AU 5537594 A US 5499196 A WO 9505627 A	14/03/95 12/03/96 23/02/95
EP	0417944	A2	20/03/91	SE 0417944 T3 AT 121035 T DE 69018550 D,T JP 3112751 A	15/04/95 14/12/95 14/05/91
US	4887291	A	12/12/89	NONE	